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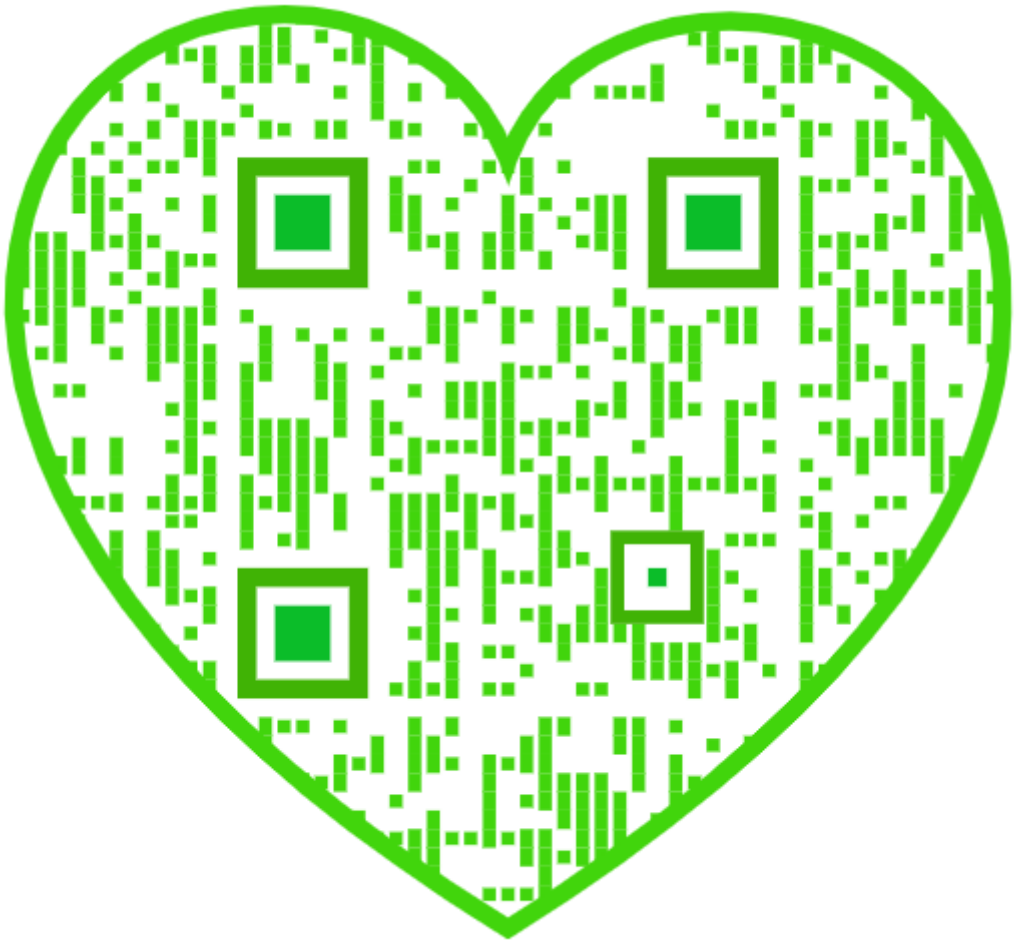

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SHORTHAND CONSTRUCTION

BY

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SHORTHAND CONSTRUCTION

The English language is spoken at the rate of 130 words a minute, on the average.

The rate of writing the English language in ordinary long-hand script is about 25 words a minute.

To record the English language at the rate of speaking it is necessary to use characters which are a great deal shorter and can be written much quicker than the ordinary long-hand letters — to use shorthand or stenographic characters in place of long-hand letters, and it is necessary to use these shorthand characters according to some system because words must be represented by graphic outlines six or more times as short and quickly written as is possible with long-hand letters.

The word Stenography may be defined as "the art of writing in an abbreviated manner, as by the use of contracted or arbitrary symbols."

Phonography is "the art of recording words according to their sound; especially, the art of representing words by means of a system of sound-elements that reduces their graphic reproduction to the simplest form."

The word Shorthand may be defined as "a system of hand-writing by characters which are shorter and quicker to write than the long-hand letters."

As ordinarily used the three words, stenography, phonography and shorthand, have the same meaning — "the art or science of recording words according to their sound by means of characters which reduce their graphic outlines to the simplest form, to the minimum."

The object of a system of shorthand should be to afford a means by which words may be recorded as fast as spoken.

What are the sounds of the language which go to make up words?

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What are the minimum shorthand characters that can be used to represent these sounds?

Obviously, if outlines of words in shorthand are to be reduced to the minimum, they must be composed of the following characters: straight lines and curved lines (arcs of circles) of different lengths written in different directions, circles, semicircles and loops, of different sizes.

In shorthand we speak of characters, not letters. A character is a mark or sign that distinguishes something.

The straight line, the curved line and the circle are, of course, the shortest marks that can be used as characters to distinguish sounds.

All systems of shorthand in use at the present time are phonetic — that is, they represent words as they are pronounced and not as they are spelled. For example, the word **cough** is written by the characters for the sounds of **k**, **a** as in **fall**, and **f**.

There are a certain number of elementary sounds and there are a certain number of stenographic characters that can be used.

Before enumerating the sounds of the language we will show the characters of the stenographic alphabet. The stenographic characters are derived from the following geometrical figures:

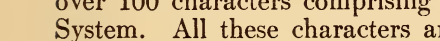
These are the shortest and most quickly written signs possible and are used, more or less, in all systems of shorthand.

All systems of shorthand differ, some slightly, others materially, in the number and variety of the above characters used and in the meanings accorded to the characters — the sounds which they represent.

From these geometrical figures the Bellamy System derives the following characters:

There are five straight lines and ten curved lines. Each straight line is written in three different lengths, making fifteen straight lines, and each of these fifteen straight lines is also

written shaded, heavy, making thirty characters which are straight lines. Each one of the ten curved lines is written in three different lengths, making thirty curved lines, and each of these thirty curved lines is also written shaded, making sixty characters which are curved lines; adding to these the thirty straight lines, there are ninety characters, called strokes; then

there are the following:  , making over 100 characters comprising the alphabet of the Bellamy System. All these characters are practical and can be distinguished; they are all made use of, each one (except two) representing a different sound. Thus there are over 100 sounds represented by the characters of the alphabet. The object is to utilize as many stenographic characters as possible for separate sounds, so that the maximum number of sounds may be represented by single characters — one stroke of the pen. That means speed, for the fewer characters that are required to represent sounds — to form outlines of words, the faster will words be written, because their representation is reduced.

The question may arise, Why do you have 100 stenographic characters when there are only 26 letters in the English alphabet? In shorthand words are written according to their sound. In English there are more than 26 sounds. Every vowel has both a short and a long sound. There are in all 16 vowel sounds; among the consonants the sound of **c** (soft) in **city** is the same as **s**, and the sound of **c** (hard) in **cap** is the same as **k**; **x** is a combination of the sounds of **k** and **s**; **q** which is always followed by **u** is a combination of **k** and **w**; but characters must be provided for the sounds of **sh**, **zh**, **ch**, **th** (two sounds), and **ng**. These are not combinations of the sounds of **s** and **h**, **c** and **h**, **t** and **h**, or **n** and **g**. There are 24 consonant sounds and 16 vowel sounds, making 40 sounds. The vowel sounds are **a** as in **cap**, **a** as in **calm**, **a** as in **fall**, **a** as in **cape**, **e** as in **fed**, **e** as in **feed**, **e** as in **her**, **i** as in **fit**, **i** as in **fight**, **o** as in **rod**, **o** as in **rode**, **oo** as in **book**, **oo** as in **poor**, **u** as in **cut**, **oi** as in **toil**, **ou** as in **foul**; the sound of **u** as in **pure** is the combination of the sounds of **y** and **oo** as in **poor**. There are forty separate sounds in English, and as in stenography we write by sound, we should have forty characters, one for

each sound, or at least a method of distinguishing each one of the forty sounds, if necessary.

But why do you have one hundred characters when there are only forty sounds? We should not limit the shorthand alphabet to forty characters when there are more characters which can be readily used. Hence we represent not only the forty elementary sounds of the language by characters but also many combinations of sounds by single characters, light and shaded. We use characters of three different lengths and all the characters are also written shaded. The shortest length, called a half-length character, represents the combination of the sound of **d** with another consonant; for example, in writing the word **seem** we write the character for **m**, but in the word **seemed** we use the half-length (one character) for the combined sound **md**. We use shaded characters to represent combinations of the sound of **r** with consonants or combinations of the sound of **s** with consonants,

etc. The character represents **k** when written light and when shaded represents **kr** (**cr**). By utilizing every character, each for a different meaning, many sounds and combinations of sounds are written in one stroke of the pen which require more than one stroke of the pen in other shorthand systems.

We will show that it is an advantage to use all possible characters including the shaded ones. What is meant by the term "shading"? By shading is meant the writing of a character heavy or thick to represent a different sound from that represented by the character written light, as ordinarily made. Shading is done by bearing on with the pencil or pen. Some shorthand systems do not use shading, and in them a character means the same whether written light or shaded. These systems are called "light-line" systems. Is shading an advantage or disadvantage to speed and legibility? That is to say, is it well to write a character light for one meaning and heavy for another meaning? If the shaded characters represented the same sounds as the light characters, it would be useless to shade and there would be a loss in speed caused by bearing on. But we use shaded characters to represent different sounds from those represented by the corresponding light characters. If a system

of shorthand uses shaded strokes to represent combinations of two (or more) sounds as the Bellamy System does, and combinations of two or more sounds are written in one shaded stroke, and if a system of shorthand uses only light strokes, as the light-line systems do, one light stroke for each sound in a combination of sounds, then the stenographer writing the shaded system is writing in one shaded stroke what the stenographer writing the light-line system must write in two or even more light strokes. It may take longer — it does take a little longer — to write a shaded stroke than it does to write a light stroke, owing to the bearing on, but it does not take longer to write a shaded stroke than it does to write two light strokes. To illustrate: **p** is written , **r** is written , but **pr** is not written , but instead in one shaded stroke ; the word **praise** is written in the Bellamy System by the three characters **pr** (shaded), **a** and **z**, in the light-line systems **praise** is written by the four characters **p**, **r**, **a** and **z**; the word **bribed** is written in the Bellamy System by the three characters **br** (shaded), **i** and **bd** (shaded), the word **bribed** is written in the light-line systems by the five characters **b**, **r**, **i**, **b** and **d**; the word **smiled** is written in the Bellamy System by the three characters **sm** (shaded), **i** and **ld**, **smiled** is written in the light-line systems by the five characters **s**, **m**, **i**, **l** and **d**. For almost every combination of sounds — and there are a good many of them — which is written in one shaded stroke in the Bellamy System, two or more light strokes must be employed in the light-line systems. In the words **praise**, **bribed** and **smiled**, and in every word where a combination of sounds written in one shaded stroke occurs, the writer of the Bellamy System gains on the writer of a light-line system by having one (sometimes two or even three) less stroke to write and loses the time required to bear on enough to shade, — which latter can be practically disregarded. Therefore by the use of shaded characters a greater number of sounds can be recorded in single strokes of the pen, and outlines of words are therefore reduced to shorter forms. All systems that do not employ shading lack a valuable

feature for obtaining speed. Of course, a writer must shade enough to distinguish a shaded stroke from a light stroke or illegibility will result and he must also refrain from shading the light strokes or they will be apt to be mistaken for the shaded strokes, but that can be readily done.

It must be apparent that the system that employs shading has twice as many characters as the system that does not employ shading, or at least as many more as are shaded, thereby having a more complete alphabet. The light-line systems do not even make use of all the possible light strokes; one light-line system excludes characters that are not written on the slope of the hand. In the Bellamy System all practical characters in all lengths are used, both light and shaded.

In estimating the value of a shorthand alphabet we must know not only how many characters are used but also how many and what sounds are represented by the characters. For example, in one system all the characters may be used, each one representing a different sound, in another system all the characters may be used but not every one for a different sound, two or more characters may in many cases represent the same sound — that is, a number of sounds may be represented by more than one character — in more than one way, thereby reducing the total number of sounds represented by the characters of the alphabet. The alphabet is thereby weakened, made less efficient for recording words, because in shorthand we should have as many sounds as possible represented by single characters (one stroke of the pen) and we should have a good selection of sounds, we should have those sounds that occur most frequently written in the quickest way so that the quickest single strokes are written most frequently. In the Bellamy System only two sounds, **h** and **y**, are written in more than one way. In some systems there are two, three and sometimes four ways of writing many of the common sounds.

In comparing the stenographic alphabets of two systems we could take the characters as shown in the geometrical figures on page 2 and find out how many of these characters are used and what sounds they represent, or conversely we could take the sounds of the English language and the commonest combinations of sounds and find out how these

different sounds are written in a given system of shorthand. **B** is a commonly occurring sound, so is **br**, **bl**, **bd** (final as in **bribed**, **robbed**), **c**, **cr**, **cl**, **kd** (as in **tacked**), **ch**, **w**, **sw**, **qu**=**kw**, **squ**=**skw**, etc. If we should take the commonest sounds and combinations of sounds of the language and find that a greater number of such sounds are written in one stroke of the pen in one system than in another system, we should say that the system having the greater number of such sounds represented by single strokes is capable of greater speed as far as completeness of the stenographic alphabet goes.

You may ask, "Isn't it a difficult task to learn as many as 100 characters?" The object sought in learning shorthand is to obtain a means of recording words rapidly, and to do so it is necessary to have as brief outlines of words as possible, as we shall explain. The fewer characters there are in a shorthand alphabet, the quicker could they be learned, but you could not learn to write words fast if you had only a few characters to write shorthand with. The problem of learning the alphabet is not the difficult thing in shorthand, though the alphabet can be made hard to learn if there are many sounds written in more than one way, causing choice of methods of writing. A hundred characters are not too many to write shorthand with. In the Bellamy System the characters in most instances bear a relation to each other, as the shaded strokes to the light strokes and the half-length strokes to the single- and double-length strokes, and as they all (except two) represent different sounds, it is not a difficult task to learn how the different sounds are written and how to form outlines of words.

We stated above that in order to record words rapidly the outlines of words must be as brief as possible. Why is it necessary to have brief outlines to record words fast? The average rate of speaking is about 130 words a minute and the rate may reach 200 words a minute or more. At the average rate of speaking the number of separate sounds, consonant and vowel, that are uttered exceeds 400 or 500 a minute. Now it is not possible in any system of shorthand to make a mark or sign for each separate sound uttered in the English or in any other language. It is simply impossible to record every sound that is uttered. A writer cannot "take down" Chinese sound for sound at the rate of speaking

and the same is true of English and every other language. A writer cannot write words in long-hand at the rate of speaking and the same is true in a system of shorthand that does not furnish sufficiently brief outlines. You may think that speed consists in rapid penmanship and in absence of hesitation, that, so long as you do not hesitate you can write fast enough in most any system of shorthand to keep pace with speaking, but that is not so. Hesitation detracts from the speed of every writer, but absence of hesitation does not enable the writer of the poor system to record words at the speed of speaking.

If it is impossible to record words in shorthand sound for sound, how are verbatim reports made? A writer who aims to record speech verbatim must omit from the shorthand outlines enough to enable him to keep pace with the speaking but must not omit so much as to impair the legibility of his notes. The writer who has the best method of recording the sounds and combinations of sounds of the English language is better prepared to record speech verbatim, because, writing a system which has a complete stenographic alphabet, he will not have to abbreviate his notes to such an extent to keep pace with the speaking that his notes will become illegible.

No system of shorthand can record words at the rate of speaking without abbreviating. The advantages of a complete alphabet of characters affording brief outlines for words are: 1, the writer will be able to write faster without having to resort to abbreviating; 2, the writer will not have to abbreviate to such an extent to keep pace with speaking as the writer who uses an incomplete alphabet; 3, it will be easier to learn to write fast because there will not be so many rules for abbreviating and contracting and so many exceptions to rule to learn to obtain the necessary brevity of outline.

We have explained the advantage of having a complete alphabet of characters. With the best possible alphabet it is impossible to record every sound at the rate of speaking. In fact we must omit a great many of the sounds, but we must remember what is omitted.

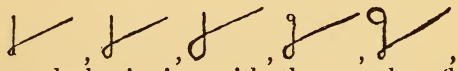
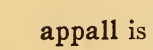
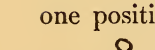
How can shorthand outlines be abbreviated? We may leave out the vowels and write only the consonants, as in some systems; we may leave off the final syllable or syllables

and write only the first syllable or only enough to recognize the word by; we may omit or abbreviate prefixes and suffixes; we may use single marks to represent the common words — and these marks which are called word-signs or logograms may be arbitrary — not written according to rule of sound; we may represent phrases by arbitrary stenographic signs or combinations of signs. Another expedient for obtaining speed, not abbreviating, is to join outlines of words without taking off the pen, called phrasing.

The subject of abbreviating is a very comprehensive one. The individual writer can abbreviate as much as he cares to as long as he can read his notes correctly. The writer of a system which has brief outlines for words, will obtain a practical speed sooner and will not be obliged to use so many expedients for abbreviating, hence it will be easier for him to obtain a practical working speed. The problem is to abbreviate our notes as much as is necessary to obtain a practical amount of speed and still be able to read them — to abbreviate without causing illegibility.

What expedients can be used to permit of abbreviating? We may abbreviate words by omitting the final syllable or syllables, writing only enough to enable us to recognize a word; we may use single marks or characters to represent common words (these marks are called word-signs); we may use single marks placed in different positions with relation to an outline or intersecting an outline at different points to represent certain sounds or syllables, as prefixes and suffixes; we may write outlines in special positions with relation to other outlines to denote different meanings; we may write outlines in special positions with relation to a ruled line of writing to represent different meanings. By using all these means of abbreviating we can record words faster because there is less to write. Another way to increase speed is to join outlines without lifting the pen (phrasing).

We will take up the expedient of position writing with relation to a ruled line. This is an important feature of shorthand writing utilized in some systems but not in others. Shorthand is almost always written in note-books having ruled lines. We may write outlines in three positions, above, on, and below or through the line. Writing in more than three positions is not practical. Is it an advantage to speed

to write in three positions instead of in one? Many writers contend that it retards speed to write in three positions and that it causes illegibility because an outline on the line stands for one thing, above the line for something else and below the line for something still different. We will show that by writing in three positions to express different meanings a gain in speed is effected. If we did not express a different meaning by writing above or below the line, it would be useless to do so and we would lose in speed owing to the extra movement of the hand. By omitting an initial vowel and placing the outline of the word above or below the line to indicate the omitted vowel, a gain in speed is effected equivalent to the time required to write the initial vowel and the loss in speed is only the time required to move the hand to write above or below the line, which is so slight it can be disregarded. We will show that this is so. If we write in one position only — on the line — the words **pal, pall** or **Paul, pole, appall** and **opal** would be written  , but by writing all words beginning with the vowel **o** (long and short) above the line with the vowel omitted, the word **opal** is written and by writing all words beginning with the vowel **a** (short) below the line with the vowel omitted, the word **appall** is written  . Which is quicker — to write in one position and write the words **appall** and **opal** and  , or to write in three positions and write **appall** and **opal** and ? Would writing above and below the line interfere with the next line of writing by extending too high or too low? In every system of shorthand outlines extend above and below the line unless only horizontal characters are used, and, of course,

there are not enough horizontal characters to write shorthand with. The question is not so much, how close to the line the writing adheres, as how quickly are words written. If you omit a sound you have less to write and hence more time to recover the position of your hand to write the following word whatever position it is to be placed in. How much time would be lost in hesitating as to which position to write in? The rule is simple, all words beginning with **o** above the line, and all words beginning with **a** (short) below the line. A writer reading his notes seeing an outline above the line knows that that outline represents a word beginning with **o**, the vowel being omitted as expressed by the new line of writing; and again, an outline written below (or through) the line represents a word beginning with **a** (short), the position below the line indicating the omission of **a** (short) at the beginning of a word. Therefore it is plain that by omitting a sound and indicating the omission by writing above or below the line a gain in speed is effected by saving the time required to write the sound. The loss occasioned by moving the hand above or below the line is so slight that it can be entirely neglected. All systems of shorthand that are written in only one position lack a valuable expedient for obtaining speed.

Besides writing above the line to indicate an initial vowel **o** and below the line to indicate **a** (short), other initial vowels may be omitted and their omission indicated by writing above or below the line provided there can be no doubt as to which vowel is the one omitted; otherwise write the word on the line in full, with the vowel written.

In the Bellamy System outlines are placed above and below the line to indicate certain omitted vowels, but only when the vowel begins the word, and all vowels following are written in the outline. Words beginning with consonants are written on the line. In some systems writing above and below the line is used to indicate one of a number of possible omitted vowels, and the omitted vowel may be anywhere in the word. Though a gain in speed is produced whenever a vowel is omitted, the system is more difficult to learn because there must be many exceptions, and until you have learned the exceptions you will not be able to recognize many words without their vowels, as the position will not

enable you to tell what vowel is omitted or where the omitted vowel is located — whether the word really begins with a vowel or not.

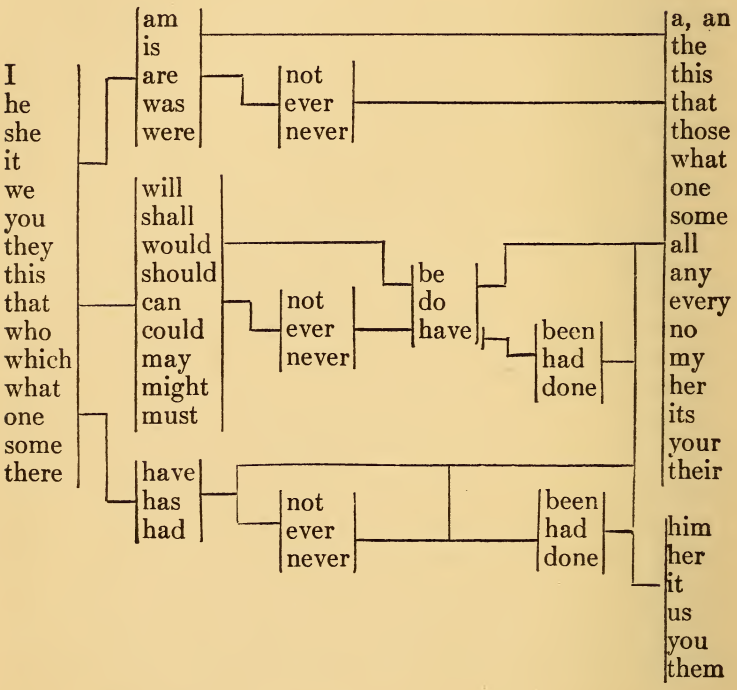
In speaking of the various methods of obtaining speed by abbreviating we stated that we may use single marks to represent the common words of the language. A mark or sign used in shorthand to represent a word is termed a "word-sign" or "logogram" and a word which is represented by a word-sign is termed a "sign-word." There are a number of words of very frequent occurrence such as the articles **a, an, the,** conjunctions **and, but,** etc.; prepositions **in, on, of, for, to,** etc.; pronouns **I, you, they, this, that,** etc.; the verbs **to be, to have, to do,** in their various tenses; the auxiliary verbs **will, shall, should, could,** etc. If we count all the words of a speech or writing, we will find that there are a hundred, or so, words that equal in number of times of occurrence all the other words of the language. For the sake of speed it is necessary to have these common words represented by short, quickly written marks or signs. If a stenographer should write these words out in full according to their sounds, he would find that he would have too much to write and that he would fall behind in speed beside a stenographer who uses single marks for these words. For instance, if you write three marks — one for each sound — for the words **which, what, would, should, was,** etc., or two marks, you would see that you had a good deal more to write than if you used only one mark for a word in each case. These words should be represented by the briefest marks, and in many instances the marks used may be arbitrary, that is, not conforming to rule of sound. These words are so common that we may represent them by any sort of mark or sign we choose, though it is well to have them represented by the character that represents their first or principal sound. In whatever ways we decide to represent these common words, when once learned, they are written so frequently that they are never forgotten, hence they may be made exceptions and written in the shortest manner.

Now in a system of shorthand that makes use of shaded characters and writes in three positions there are more single marks available to use as word-signs to represent these words than there are in a system that makes use of only light

characters and which is written on only one line of writing. In a system using shading, a short dash written light may represent one word and the same dash written shaded may represent another word, and the same dash or mark may be written on the line for one word, above the line for another word and below the line for still another word; so a single mark may be made to do service in representing a number of words and all these words would be written in one stroke of the pen, whereas in a system that is written only on the line and that has no shaded characters there would be fewer single characters and signs to use to represent these common sign-words, hence many of these common words could not be abbreviated to one character or represented by one mark, and hence a large number of common words could not be written as quickly as they are written in the Bellamy System in which these common words are all represented by signs written in one stroke of the pen.

We next take up the feature of shorthand writing called PHRASING. Phrasing is the joining of two or more words in one continuous outline without lifting the pen. Instead of writing words separately we may join them and thereby save the time of taking off the pen. In deciding what words to phrase our object should be to try to conform to a rule as much as possible and join common words, words that occur together frequently, so that the possibility of forming a phrase may be readily perceived, the phrases readily learned, and through repetition become familiar and therefore written quickly. In the preceding paragraph in speaking of sign-words we stated that there are about one hundred words comprising the articles, prepositions, pronouns and common verbs that equal in times of occurrence all the other words of the language. That is, these one hundred words are written or spoken as many times as all the other words of the language are written or spoken. It would be very singular if these words did not occur together frequently. In the phrases **I shall not be a, I will not have the** there are five common words occurring together. By having all these common words represented in the Bellamy System by short word-signs and by having these word-signs joinable in phrases in one invariable way with few exceptions, phrasing is made easy to learn and the speed is thereby increased considerably.

Below is a diagram showing the scheme by which words are phrased:



Any word in one column may be joined to any word in a following column connected by the line. For example, we may write the phrase **I will be a** or substitute any word in the first column for **I**, as in the phrase **he will be a**, or substitute any word for **will**, as **he should be a**, or substitute any word for **be**, as **he should have a**, or substitute for **a** as in the phrase **he should have one, there should never have been any**, etc., etc. These words are the common words of the language and often occur together, hence their adaptability to phrasing. By having these words joined in phrases in one invariable way phrases are readily learned, quickly written and easily read. Those who have studied Latin will see the principle of the Latin verb **I have loved,**

I shall have loved, you will have loved applied to the verbs **to be, to do** and **to have.**

As we may abbreviate words and use special signs or outlines for words, so we may use special outlines for phrases, phrase-signs. We can join words in phrases as such or we can use special outlines or any combination of stenographic signs to mean a phrase. The extent to which words are phrased will be limited only by the experience and capacity of the writer for memorizing phrases. Thus one writer in one line of work, meeting words and phrases which he has occasion to write often, can join such words or improvise special phrases, which it would not pay a writer in a different line of work to memorize as he would not have occasion to write them often enough. There is the business phrase **I am in receipt of your letter** and the legal phrase **state whether or not.** These phrases may be called the special, code or secret phrases and can only be read by those acquainted with their meanings. Any combination of stenographic signs or outlines may be used to stand for these phrases.

In the previous paragraph on the subject of abbreviating we spoke about abbreviating prefixes and suffixes. We may use special marks written in different positions with relation to an outline or intersecting an outline in different locations to represent prefixes and suffixes. For example, there are many words beginning with the prefixes **con-** and **trans-**, and many words end in the suffix **-ness.** These and many other prefixes and suffixes may be indicated by special marks written in special positions with relation to an outline.

We stated that in order to record speech verbatim we must abbreviate many of the words, because at the rate of speaking it is impossible to write words out in full, making a mark for every sound uttered. A writer can record speech verbatim because he can abbreviate and still know what he has written. The more words we write out in full, the slower will be the speed, and the more words we abbreviate, the faster can we write, provided we know how to read our notes. Every time we write a long word out in full, speed is slackened. Take such words as **immediately, especially, simultaneously, manufacture;** if we write such long words out in full, indicating each sound, we will find that we have

too much to write and that we cannot keep pace with the speaking. That is the reason technical matter is hard to write fast, because it is usually unfamiliar, and the writer must write it out in full in order to be able to read his notes correctly. Many long words can be abbreviated by omitting the final syllables, writing just enough to recognize the word by. We can use any abbreviation or contraction for a word that will not be mistaken for another word. For example, we can abbreviate the word **immediately** to the shorthand **i-m-e**, **especially** to **sp**, **laboratory** to **lab**, and in reading our notes we will remember what word the abbreviated shorthand stands for. By abbreviating there is less to write and a gain in speed is effected. The amount of abbreviating required to obtain a verbatim speed will vary with the system of shorthand. If a system of shorthand affords brief outlines for words, it can be written faster, and not so much abbreviating will be required to record at the rate of speaking; but in the light-line, shadeless systems it is practically impossible even with the greatest amount of abbreviating to obtain sufficient brevity of outline that words can be recorded at the rate of speaking. The amount of abbreviating will vary among writers of the same system, thus the writer who has had experience, who is familiar with the words of the language, abbreviates words which are unfamiliar to a writer of less experience, and illegible if not written out entire.

To sum up: shorthand is the art or science of recording words by means of characters that are shorter and quicker to write than long-hand letters. The object of writing shorthand is to record words (and sentences) as fast as they are spoken. To record words at the rate of speaking we must have shorthand representations (outlines) of words short enough to be written at the rate of speaking. How can we form outlines of words short enough to be written at the speed of speaking? 1, By writing words according to sound, and 2, by employing the shortest possible stenographic characters to represent sounds. There are a limited number of marks that can be used in shorthand as characters to represent sounds. The shortest characters that can be written are the straight line, curved line (arc of a circle), circle, semicircle and ellipse. Hence these marks in different

lengths and written in different directions are used to represent sounds and, joined together, form outlines of words. We should use as many of these marks as possible and use them to the best advantage. We should have each character represent a different sound and have the commonest sounds represented by the characters which are quickest to write. The more characters we have to write shorthand with, the greater the total number of sounds that can be written in one stroke of the pen, and the more sounds we write in one stroke of the pen, the quicker can outlines of words be written. We should write the characters thick or shaded as well as light (as ordinarily made) and we should use the shaded characters for different sounds from those represented by the light characters, for by so doing we double the number of sounds written in single strokes of the pen. That increases speed because many combinations of sounds can be represented by one shaded character which would require two or more light characters if only light characters were used. A shaded character is quicker to write than two light characters.

By taking all possible stenographic characters and writing them both light and shaded we have the greatest number of characters to use to represent sounds. We should use them all, for if we don't, we miss an opportunity of writing a sound in one stroke of the pen; and we should use each character to represent a different sound, for if we have two or more characters representing one and the same sound, the total number of sounds represented by the shorthand alphabet is lessened. Another advantage in having every character represent a different sound is that there is then but one way of writing a sound, and hence the method of writing the sounds and forming outlines of words is more readily learned.

With the most complete alphabet of stenographic characters and the best arrangement of the characters for forming outlines, it is impossible to write a mark or sign for every sound uttered at the speed at which words are spoken. A writer cannot record words at the rate of speaking unless he abbreviates, and to a considerable extent. If we aim to record words as fast as spoken we must omit many of their sounds, but we must not omit so much that we cannot tell

what the shorthand means. The problem is to abbreviate as much as possible without causing the notes to become illegible and at the same time to make few rules for abbreviating and few exceptions to rule, so that abbreviating can be readily learned.

The faster we aim to write, the more words is it necessary to abbreviate. We can abbreviate as many words as we care to as long as we remember what the abbreviated shorthand stands for. To make abbreviating easy to learn we should have a rule or rules of abbreviating that can be applied to a great number of words and we should use as many expedients of shorthand writing as we can to indicate omitted sounds or omitted words. We can abbreviate words by omitting the final syllable or syllables; writing the first syllable or syllables entire will enable us to recognize what word the abbreviated shorthand stands for. In the case of similar words we can abbreviate one — the commonest — and write words beginning in the same way out in full or write enough to distinguish the word so that there will be no doubt as to what word is meant. The more frequently a word occurs, the greater the need of abbreviating that word, and the easier will it be to remember the abbreviated shorthand. Hence common words, especially long words, should be abbreviated. The commonest words of the language are the articles **a, an** and **the**, conjunctions, prepositions, pronouns, and the common verbs **to be, to have** and **to do**. These words are written so often that, for the sake of speed, they ought to be represented by the shortest, most quickly written shorthand signs. A word that is written so often ought, if it is abbreviated at all, to be abbreviated to the shortest possible shorthand sign, therefore we should make exceptions of these common words and use arbitrary, short signs to represent them.

If there are any means or devices of writing shorthand which can be used to indicate omitted sounds or words, they ought to be used. As means of indicating abbreviating we can write outlines of words in special positions with relation to other outlines, as just above, or just below or close to the preceding outline. We can write marks and signs in different locations with relation to an outline, or to a single character of an outline, or intersecting an outline at different

points — these marks to have different meanings according to the location in which they are placed. We can write outlines in special positions with relation to the ruled line of writing, as above and below (or through) the line. All these means can aid us to show abbreviating. If we can by the use of these methods and devices reduce the shorthand necessary to write without causing illegibility, then these methods and devices should be used to increase speed.

Another device for increasing speed is the joining of outlines without lifting the pen, called phrasing. Phrasing enables the writer to write faster by saving the time of taking off the pen. We should have a system of phrasing that can be applied to a number of words, words that occur together frequently, so that phrases can be readily learned and written.

From the foregoing it is seen that to record words in shorthand rapidly we must make use of all stenographic characters and use them to the best advantage, and we must make use of all devices and methods to reduce the amount of shorthand necessary to represent words in graphic outline, and use these devices to the best advantage.

The speed with which words can be recorded in shorthand depends on the brevity of the outlines of words. The shorter the outlines, the faster the speed. So we can say that the system that uses the greatest number of characters and to the best advantage, and uses the greatest number of expedients affording the briefest, most quickly written outlines of words can, when learned, record words at the fastest speed, and that a system that is lacking in expedients for producing short outlines cannot record words at the average rate they are spoken.

Shorthand systems are constructed differently; some vary slightly, others considerably, in the number of characters comprising the alphabet, and in the meanings accorded to the characters — the sounds they represent, and in the number of expedients used, and in the extent to which the expedients are used. Where two systems differ widely, it is an easy matter to find which is the faster, but where two systems are nearly alike, the problem of finding which is faster is difficult. Also the question of the time required to learn a system must be taken into account as well as the speed a system is capable of attaining.

Before making any comparison of systems we will describe the methods used to represent the vowel sounds as they vary in different systems. In the Bellamy System the vowels are all represented by circles, semicircles and curved strokes which are written in the outline of the word (except when an initial vowel is omitted), joining the consonant characters in the order of sequence. Thus the word **cap** is written **k-a-p**. All systems in which the vowels join the consonants in the outline of the word are called CONNECTING-VOWEL systems because the vowels connect the consonants. In a preceding paragraph in speaking of devices of writing shorthand we stated that we can write marks in different positions with relation to an outline or to a character of an outline to represent different sounds according to the location. In some systems, the Pitman systems especially, dots and dashes and other marks are placed in different locations, as before or after the middle, or the first third, or the last third of a consonant character to denote the different vowel sounds. Thus in the Pitman System the word **cap** is written **k-p**, and then the dot to represent the vowel **a** (short) is placed after the first third of the character for **k**. The consonant outline of the word is first written and then the vowel signs are written afterwards separate from the consonants, each one in its proper location. The systems that use this method of representing the vowel sounds are called UNCONNECTING-VOWEL systems because the vowels are written disconnected from the consonants.

Before discussing the relative merits of these two methods of writing vowels we will consider the connecting-vowel systems.

The principal connecting-vowel systems are the Pernin System and the Gregg System. All the connecting-vowel systems in use to-day are either light-line systems (do not employ shading) or are written in one position only, on the line. Both the Gregg and the Pernin are light-line systems and are written only on the line. The Bellamy System is a

connecting-vowel system and is the only connecting-vowel system that employs shading and writing in three positions. This statement can be verified by an examination of the various systems. The best article on the subject of shorthand that we have seen is in the International Encyclopedia published by Dodd, Mead & Co.

We stated that by writing above or below the line to express an omitted sound we gained in speed by reducing the amount of shorthand, and that by writing the characters shaded to represent different sounds we gained in speed by reducing the shorthand representations of words, because we can write in one shaded character (one stroke of the pen) many sounds and combinations of sounds which would have to be written in more than one light character if only light characters were used, and a shaded character is quicker to write than two light characters.

As the Pernin and the Gregg systems lack these two important features for reducing the shorthand, it is evident that they cannot record words as fast as the Bellamy System can unless they have other features to make up for the ones that they lack. In the matter of other features to be considered: aside from not using shaded characters the Pernin and the Gregg systems do not include all possible light characters; they do not have the quick and ready methods of phrasing the common words of the language; and they have no advantages over the Bellamy System in the methods of abbreviating. So it is apparent that the Pernin and the Gregg and other light-line systems, owing to their lack of the necessary expedients, are limited to a slow rate of speed in recording words. They may be easy to learn, though not necessarily, but they are not easy to learn to write fast, for there are no ways by which they can attain the necessary brevity of outline to permit of words being recorded as fast as spoken. It is most difficult, almost impossible, to attain a verbatim rate of speed with any light-line system of shorthand.

We will take into consideration the other class of systems — the systems that have unconnecting signs for the vowel sounds. We explained above how the vowels may be written by disconnected signs, showing how the word **cap** is written in the Pitman System. The principal systems that have

unconnecting signs for the vowels are the Pitmanic systems. By "Pitmanic" is meant founded on or resembling the shorthand system of Sir Isaac Pitman. Of the Pitmanic systems the best known are the Isaac Pitman, the Benn Pitman, the Graham and the Munson; there are others less well known. Besides having detached signs for the vowels all the Pitmanic systems have the following features in common: 1, same alphabet, practically; 2, shading; 3, writing in three positions. They differ in only a few minor details of the alphabet such as the characters used for some sounds but they are so nearly alike that there is practically no difference in speed or ease of learning in favor of any one of the group. When we use the word "Pitman" we refer to the Isaac Pitman System, though it might just as well apply to any other one.

We will compare the Pitman System with the Bellamy System with a view to finding their relative advantages for speed and ease of learning. For that purpose we will take into consideration the number of characters comprising the alphabet in each system, and the sounds represented by the characters, and the expedients they make use of, and the rules for writing, etc.

The chief difference between the two systems is the method of writing the vowel sounds. In the Bellamy System all seventeen vowel sounds (see page 3) are represented by circles, semicircles and curved lines which are written in the outline of the word without lifting the pen. In the Pitman System these seventeen vowel sounds are represented by marks which are written disconnected from the consonant outline, twelve of them in special locations with relation to the consonant characters. In the Pitman System **cap** is

written and the words **cape, keep, cop, cope, coop, cup, copy** and **occupy** are written by the same consonant outline and the vowels are written afterwards. There

is **copy** , there is **occupy** .

Which method of writing vowels is easier to learn? There is nothing difficult about either method. In the Pitman System the consonant outline is written and then the marks for the vowels, which are small or large dots, light or thick

dashes or other marks as the case requires, are placed in their proper locations.

Which is the quicker method of writing words — with the vowels written in the outlines or with the vowels detached from the outlines? It must be apparent to everybody that it is quicker to write vowels in the outline without taking off the pen than it is to write them separate from the outline. The method of recording words by writing the consonants and filling in the vowels is called the Correspondence Style of Pitman Phonography. The Pitman System written in the Correspondence Style is limited to a very low rate of speed, to about fifty words a minute, because it takes time to insert the marks for the vowels, one by one, each in its proper location. The Pitman writer to gain in speed omits the vowels and otherwise changes the consonant outlines, writing what is known as the Reporting Style. The faster he aims to write, the more vowels have to be omitted. We think that everybody would say that if the Bellamy System writes both consonants and vowels and the Pitman System writes consonants only, then outlines can be written quicker in the Pitman System. But does the writer of the Bellamy System have to write all the vowels, and can the Pitman writer leave them all out? Do all the consonants have to be written, and, if so, in which system are consonants written quicker?

To answer these questions in detail is beyond the scope of this book. Moreover, we could not settle decisively which system is faster, and how much faster, by a mere consideration of these questions and answers. We should keep these questions in mind to aid us in reaching some conclusion. Besides the question of speed the time required to learn to write with speed is important.

We make the claim that the Pitman System is harder — very much harder — to learn than the Bellamy System, and that there is very little, if any, difference between them in their speed of recording words.

We will present evidence to show that these claims are reasonable. The Bellamy System uses all possible expedients for reducing the shorthand that can be included in a connecting-vowel system. The Bellamy System, like the Pitman, makes use of all possible characters, light and shaded, in all lengths, though the characters are not used in both for

the same sounds nor to the same extent. Both systems are written in three positions though the rules for writing above and below the line are not the same. Some words are quicker to write in the Pitman System and some words are quicker to write in the Bellamy System.

We will show that a system in which the vowels are not written in the outlines of words is hard to learn to write fast. If we do prove that the Bellamy System is easier to learn, it does not mean that it is the better system to learn, for a writer may prefer to spend more time in learning a system provided in the end it could record words faster; so we should not lose sight of the question of speed.

An unconnecting-vowel system cannot record words fast, faster than about fifty words a minute, unless the vowels are omitted. With the vowels omitted many words have the same consonant outline. There are nine words that have the consonant outline **k-p.** Many words have the same consonants, and you must have some way to distinguish between them in order to read the notes. If there is no way of expressing the omitted vowels or otherwise distinguishing between words of the same consonant outline, the vowels must be written — some of them at least — retarding speed.

To diminish the necessity for writing vowels, outlines are written in the Pitman System in three positions to express omitted vowels. The seventeen vowels are divided into first-, second- and third-position vowels. There are five first-position vowels and five third-position vowels. The rule is to write a word in the position governed by its vowel, if there is more than one vowel, in the position governed by its principal, that is, accented vowel. For example, the word **cap** is written in the first position because the vowel **a** (short) is a first-position vowel and words in which **a** (short) is the only vowel or is the principal vowel, if there are more than one, are written in the first position, above the line. And so on with the other vowels.

In the Bellamy System outlines are written above or below the line to indicate an omitted vowel at the beginning of the word. So when a writer, reading his notes, sees an outline above the line he knows that a certain vowel is omitted at the beginning of the word. But in the Pitman System writing above, on, or below (through) the line is used to

indicate one of a number of possible omitted vowels and the vowel omitted may be anywhere in the word. A Pitman writer reading his notes without vowels cannot tell from the position of an outline which vowel represented by that position is omitted nor whereabouts in the word the vowel is omitted, whether at the beginning, in the center or at the end, and he cannot tell how many other vowels besides the one represented by the position, are omitted. You cannot tell from the position which one of the vowels represented by that position is omitted, nor how many vowels in all are omitted, nor where any of the vowels are omitted, whether at the beginning, in the center or at the end of the word, unless you have kept in mind what words you are writing without vowels, or unless the consonant outline indicates the word, or unless the context shows what word is meant. You have got to omit the vowels to write fast, but you must learn to write and read outlines without vowels.

Many Pitman writers claim that the vowels are not necessary because you can recognize the words from the consonant outlines with the aid of the context — the sense it makes. A great many words can be so recognized, others could not. Take the outline **k-p** — **k-p** in three positions cannot indicate the nine words that have this consonant outline. How many words have the consonant outline **k-m**? There is **come, came, acme, cameo** and others. How many words have the consonant outline **b-t**? How many the consonant outline **r-l**? Three positions cannot satisfactorily represent seventeen vowels. Many words have the same outline in the same position and you have got to remember what words are written without the vowels and what words require vowels, or depend on the context to read your notes. Any shorthand writer can rely on the context for aid; sometimes it helps, sometimes it doesn't. Where all the words are written without vowels the chances that the context will help are lessened. What does the Pitman writer do when he has a new or strange word to write? He may not hear the word distinctly and so fail to write the correct consonant outline; if he does make out the consonants, he may hesitate in deciding which is the accented vowel and in which position to write the outline, he may not have time to write a single vowel sign or enough signs to distinguish the word,

and then how can he read his notes? The context may or may not help. No system of shorthand that leaves out the vowels can be made easy to learn to write fast; there are too many vowels.

A writer of the Bellamy System, hearing a new or strange word, could make out the first or first two syllables and could begin the shorthand outline, writing the first or first two syllables, omitting the rest, and he would be much better able to read the word correctly than the Pitman writer could be from the consonant outline. It is easier to recognize a word from its first or first two syllables complete than from its consonant outline.

We think that every one would say that the natural way to write shorthand is to write the sounds as they occur, as in long-hand, and we think that every one would say that a system in which the vowels are written in the outline is easier to learn and more legible than a system in which the vowels are omitted, because with the vowels omitted many words are written the same and you have to learn what words are written without the vowels and what words require the vowels, and you must not forget what the outlines without the vowels mean, or the notes will be illegible. In a system in which the vowels are written in the outline all this matter of distinguishing between words is not present because the vowels indicate the word.

There are many words represented by the same consonant outline written in the same position in the Pitman System, and to distinguish between these words without writing the vowels the Pitman System makes use of writing the consonants in different ways, varying the outline to indicate an omitted vowel or vowels. This is possible in the Pitman System, since there are three ways of writing **l**, three ways of writing **r**, two ways of writing **s**, two ways of writing **z**, four ways of writing **w**, four ways of writing **h**, three ways of writing **y**, two ways of writing **sh**, two ways of writing **zh** (as in **vision**), two ways of writing **t**, two ways of writing **d**, two ways of writing **n**, two ways of writing **f**, and two ways of writing **v**.

What is the effect of having these extra ways of writing these common sounds on the speed and ease of learning of the system? In many instances words are varied to have

shorter consonant outlines, and as the different ways of writing the consonants do away with the necessity of writing vowels, there is a gain in speed. You could have as many ways of writing a sound or a number of sounds as there are characters available to use, but as there is a limited number of marks that can be used as shorthand characters, if we do not use each and every character to represent a different sound, the number of sounds represented by the characters of the alphabet is lessened.

We will show that a system that has two or more ways of writing a sound is hard to learn. In the first place we will explain what is meant by varying the consonant outline to indicate the vowels: the sound of l is written in three different ways in the Pitman System, 1, up, 2, down, 3, by the l hook. The word **tell** is written , the word **tale** is written and **towel** is written .

The perpendicular stroke represents t and l is written in three ways — in **tell** l is written before t (in point of time) by the l hook. The l hook is joined to other consonants, **bl** , **cl** , **dl** , etc. By varying the way of writing l to express the different vowels, the signs for the vowels need not be written. Is it a good plan to have three ways of writing l? It is harder to learn because you will have to remember which one of the three ways is written with each and every vowel, and when you read your notes you must remember which vowel is meant by each of the three different ways of writing l. If the Pitman writer always wrote l by the l hook to represent **-ĕl,** upwards to represent **-āl,** and downwards to represent **-oul** or **-ouel,** then he would not need to write the detached vowel signs for these vowel sounds. But does the Pitman System always write l as in the three ways above to represent these vowel sounds? In some cases a hook is not joined to a consonant character and in other cases a hook is not used to indicate l, but in cases where there are three ways to write l, exceptions are made. In

the word **tell** l is written by the l hook, but in the word **trellis** the hook for l cannot be used; in the words **yell, well,** and many other words the l hook cannot be used. Now the rules for writing l differ in the different systems, but we are referring solely to the Isaac Pitman System. In the Isaac Pitman System we find that in the word **bell** l is written upwards, in **mail** l is written upwards, but in **fail** l is written downwards, in **cowl** l is written upwards, in **nail** l is written downwards, in **knell** l is written downwards. So you see that there are exceptions and l is not always written by the l hook to represent -ĕl, upwards to represent -āl, etc. We cannot give all the exceptions, what we aim to show is that where there is a number of ways of writing a sound, the rules for using each method may have many exceptions.

Among the many consonants written in more than one way in the Pitman System **r** is written in three ways, 1, , 2, , 3, by the **r** hook. We find in the text-books that there are many exceptions to the rules for the three methods of writing **r**. Sometimes **r** is written upwards and under like conditions where **r** is preceded or followed by the same vowel or consonant, exceptions are made. In the word **lamb** l is written upwards and in the word **elm** l is written downwards. In writing the word **realm** you might write **rel** and add **m** or you might write **r** and add **elm**. We do not say whether there would be any choice in writing the word **realm**, but we show what is liable to happen when you have more than one way of writing a sound.

We do not say that wherever a consonant occurs it can be written in all the different ways. Many of the consonants are written in only one way at the beginning of a word. But you can see that the result of having all these consonants written in more than one way is that words containing any one of these consonants can be written in more than one way, and the more consonants a word contains, the more ways there are of writing its consonant outline. For example, take the word **distill**: you may write the four consonants; you may write **d** and write **s** by a circle (**s** is written by a small circle or by the character), write **t** and write **l** in

one of two ways; you may write **d**, make a circle for **s** and write **til** by joining the **l** hook to **t**; you may write **d** and make a small loop for **st** and then add **l** in one of two ways; or you may write **d** and then write a character half the length of **s** to represent **st**, and then add **l**. Take the word **furnish**: **furnish** can be written in a number of possible ways. We could add examples without end to show the multiplicity of ways of writing words in the Pitman System.

You may say, "always choose the quickest way of writing a word; if the outline cannot be written readily in one way, choose another." But if you always chose the quickest way of writing a consonant outline, then you would write all similar words in that same quickest way, and there would be no varying of the outline to indicate the vowels. If you took your choice in writing an outline, you could take your choice in supplying the vowels in reading the notes. You can see that where there are so many different ways of writing sounds, you must keep the different ways distinct in your mind, and until you have learned to do so you will not be prepared and able to write fast, you will be apt to hesitate in writing.

Before a word can be written in shorthand the outline must be thought of. If you have choice of outlines, you will hesitate while making your choice. Choice means hesitation. The more ways you have to choose from, the more hesitation, until you have learned to write without choice, without hesitation.

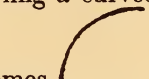
In the Bellamy System every sound except **h** and **y** is represented in but one way, and every combined sound is written by rule in one uniform way. The vowels are written in the outline and distinguish between similar words so that there is no varying of the outline to represent omitted vowels, and there is almost no choice of ways of writing an outline.

In the Bellamy System there is UNIFORMITY of writing; in the Pitman System there is LACK OF UNIFORMITY. Uniformity of writing means EASE OF LEARNING; lack of uniformity means DIFFICULTY.

We will consider further the alphabet of the Pitman System. In the Pitman System the elementary consonant sounds are arranged in pairs, a light, soft sound being represented by a light character, and the cognate, heavy sound

being represented by the corresponding shaded character, as **p** , **b** , **f** , **v** , **s** , **z** , etc. The characters are all shortened to half lengths and lengthened. Halving a light consonant adds **t** and halving a shaded consonant adds **d**. To illustrate the halving principle: **s** is written , **st** is written , half the length of **s**, **saw** is written , **sought** is written . Halving a character may represent the addition of **t** or **d** alone, as in the word **apt**, or it may represent the addition of **t** or **d** preceded by a vowel, as in the words **pat**, **sought**; the vowels may be written or omitted. Many exceptions are made; sometimes halving a light character adds **d** and halving a shaded character adds **t**. The halving principle produces a gain in speed, but it adds greatly to the difficulty of learning, as there are many exceptions, and it allows a choice of methods of writing. There are many exceptions; sometimes the halving principle is not used and at other times it is. If you had a new word to write, especially a long word, you would be undecided whether to use the halving principle or not.

The characters are also lengthened to represent combined sounds. Lengthening a character is done to add the syllable **-ter**, **-ther**, or **-der**, either preceded by a vowel or not. To illustrate the lengthening principle: **l** is written , and when lengthened to it could mean the following: **latter**, **later**, **letter**, **lighter**, etc., **ladder**, **leader**, etc., **lather**, **leather**, etc., or **alter**, **elder**, and **older**. The same outline cannot well represent the words **latter**, **ladder**, and **lather**, so wherever there would be doubt as to the meaning of the outline, the lengthening principle must be abandoned and exceptions made. Lengthening and doubling a straight character results in the same straight line; for example, if we lengthen **b** we get , and we could not

tell whether it was lengthened to add **-ter**, as in the word **batter**, etc., or doubled to represent two **b**'s, as in the word **bob**, etc. Lengthening and doubling a curved character are not the same, as l lengthened becomes  , but l doubled is . So the lengthening principle should be applied only to curved characters, not to straight characters. We do find, however, that many exceptions are made.

The lengthening principle adds to the choice of ways of writing a word in outline and adds greatly to the difficulty of learning the system. If you had a new word to write, you might be undecided whether to use the halving principle to add **t** or **d**, or to use the lengthening principle to add **-ter** or **-der**, or to use neither. Take the word **unilateral**: that word can be written by any one of a very large number of possible outlines.

Sometimes the lengthening principle is used in writing a word, but in adding a syllable or in writing a similar word the lengthening principle is abandoned. The word **matter** is written by the lengthening principle, but for the word **mattered** a different way of writing the outline is used. The word **flatter** is written by the lengthening principle, but instead of writing **flattery** by adding **i** to **flatter**, the word **flattery** is written by a different consonant outline.

Other examples of change of outline: **till** is written by the l hook, but instead of writing **tiller** by adding **r** to **till**, **tiller** is written , instead of adding **i** to **race** to form **racy**, **racy** is written by a different outline; **make** is written by the outline **m-k**, but instead of adding **r** to **make** to form the word **maker**, **maker** is written by adding **k-r** to **m**, and the **r** is written before **k** in point of time. This transposing the order of the consonants as in the word **maker** is liable to cause trouble in deciding where a vowel is to be placed and read. In the word **tell** the order of the consonants is transposed.

Now by varying outlines in these numerous ways the vowel sounds are not needed, but you can see what a great deal there must be to learn. The reason why the Pitman System is hard to learn to write fast is because speed is obtained by omitting vowels and by varying the outlines of words. The beginner learns the Correspondence Style, but as that style of writing is limited to a slow speed, he discards the Correspondence Style for the Reporting Style, omitting the vowels and varying the outlines. All the Pitman systems go to practically the same extent in varying the outlines, all are equally hard to learn to write fast. The rules for writing the consonants are subject to so many exceptions and allow so much choice that the difficulty of choosing the proper one from among the various possible outlines causes so much embarrassment, retarding speed, and the necessity of remembering how certain words are distinguished from certain other words by differences of outline is so great a burden to the memory that the system can only be written rapidly and read correctly by those who can afford to give the necessary time to learn and can have the constant practice to keep the shorthand outlines fresh in their minds, lest they forget.

After a writer has learned how a word is to be written, he will have no hesitation in writing that word unless he forgets, but whenever he meets a new word, which may be frequently or may not be, according to his experience, his speed will in all probability be retarded while he stops to think what is the proper outline to write and how many vowels can be left out, if any.

By reducing the shorthand and leaving out the vowels the Pitman System obtains very short outlines for many words. Words are also reduced to short outlines in the Bellamy System. It would do very little good to compare outlines in the two systems, as we could not determine how many words are written faster in one system and how much faster. It is quicker to write consonants alone than to write both consonants and vowels, but how much quicker?

In the Bellamy System the vowel sounds are all represented by circles, half circles and curved strokes that are all written quickly in the outlines, connecting the consonants. Vowels can be omitted when not necessary for the correct reading

of the word, but, as a rule, they are not. If we decide to omit the vowel **i** (short), then in reading our notes we will supply the vowel **i** (short) as the missing vowel, provided we can tell whether there is really a vowel to be supplied or not, but that can be readily told. Other vowels can be omitted, especially when unaccented. Words are abbreviated by omitting their final syllables, and as they are thereby written quickly enough for all practical purposes, the omission of vowels is not practiced, not to any great extent.

In considering the question of the speed possibilities of a system we should note how many shorthand characters are used and how many and what sounds are represented by the characters. We will show that a number of characters in the Pitman alphabet are written very infrequently or not at all. In the Pitman System the soft sound of **th** as in **thin** is written (light), and the hard sound of **th** as in **then** is written (shaded). Now there is no need to make any distinction in shorthand between these two sounds because words containing either sound can be readily distinguished if both sounds are written alike. Only one character is needed to represent both these sounds. The only words where the soft sound of **th** could possibly be mistaken for the hard sound of **th** (or *vice versa*) are **thigh** and **thy, ether** and **either, sheath** and **sheathe, loath** and **loathe.** Anybody writing shorthand could tell by the context which word of these pairs was indicated by the shorthand if the two sounds of **th** were written the same. There is no need to have any distinction between the two sounds of **th** because there are no words in which the two sounds of **th** would be confused.

As the Pitman System uses two characters for **th** when but one is necessary, so two half-length characters and two double-length characters are used when but one half-length and but one double-length is needed. The double-length characters which represent the addition of the syllables **-ter, -der** or **-ther** to **th** are practically unused; the only word we can think of where the lengthening principle can be applied to **th** is **thither.** So the double-lengths of **th** are

almost unused. Other double-length characters are infrequently used.

The sound of **sh** as in **fish** is written in two ways up and down (light), and the sound of **zh** as in **vision** is written in two ways, up and down (shaded). There is no need in writing shorthand to make any distinction between these two sounds. The only words in the English language that would have the same outline if **sh** and **zh** are written the same, are **assure** and **azure, leasher** and **leisure.** Any one writing shorthand could tell from the context which word of these pairs was meant if only one character represented both sounds. You can have two characters for the sound of **sh,** just as you can have two ways of writing other sounds, in order to vary the way of writing **sh** to indicate the vowels. But the sound of **sh** is not very common, and when it comes to writing half-lengths and double-lengths for **sh** and **zh,** these characters are hardly used at all. The only words that can be represented by the double-lengths of **sh** and **zh** are **shatter, shutter, shooter, shouter, shudder,** and possibly a few others.

The Pitman System uses four characters for the two sounds, **sh** and **zh,** when only one is really needed, and also four half-lengths and four double-lengths when only one half-length and only one double-length is needed. So here are nine characters in the Pitman System which are practically unused. All these characters which are written very infrequently in the Pitman System are used to represent more common sounds in the Bellamy System.

The alphabet in the Pitman System is founded on the alphabetical principle, that is, the consonant sounds are taken to be represented by shorthand characters. The alphabet in the Bellamy System is founded on the stenographic principle, that is, the shorthand characters are all taken and each used to represent a different sound.

If the Bellamy System uses each character to represent a different sound and uses the characters for the most common sounds, while the Pitman System does not use each character for a different sound and uses many characters for sounds of infrequent occurrence, then the alphabet of

the Bellamy System is more efficient for recording sounds, but, on the other hand, the Pitman System uses detached signs for the vowel sounds, which signs are not used to so great an extent in the Bellamy System. What we aim to show by this consideration of the comparative merits of the alphabets is that there is not much, if any, advantage in one alphabet over the other as a means for securing speed. We can prove little, however, by a mere comparison on paper.

Another important feature to consider in determining the speed and ease of learning of a shorthand system is phrasing. Phrasing may be easy to learn if there are uniform rules and it may produce a considerable gain in speed if words that frequently occur together are joined in phrases. When we use the word "phrase" we mean a combination of words written in one continuous outline in shorthand or we may mean the shorthand outline or representation for these words, which latter should be more properly called a phraseogram. Of course, a stenographer can phrase as many words as he cares to, as there is practically no limit to the number of words that can be joined; but when uncommon words and words that rarely occur together are phrased, the gain in speed hardly pays for the burden put on the memory to remember such phrases.

We make the claim that phrasing is a great deal easier to learn in the Bellamy System and that the majority of phrases composed of the common words of the language are written in quicker phrases (phraseograms) in the Bellamy System than in the Pitman System. The reason why phrasing in the Pitman System is hard to learn is because words are varied in outline in phrases just as consonants are varied in outline in words. If, as in the Bellamy System, phrases are formed by joining words that are otherwise written separately, then there is but one way of writing a phrase, and the matter of learning to phrase is easy — simply join words that are to be phrased. But if, as in the Pitman System, phrases are formed sometimes by joining phrase-words in outline, and sometimes by writing these same phrase-words in a different way in other phrases, then it becomes a difficult matter to learn how phrases are formed.

In the Pitman System we find that some common words are not phrased and that many words are written in different

ways in different phrases. To show examples: the words **no** and **any** are both written in the Pitman System by the character for **n** as **n** is the only consonant in these two words. If these words should be joined in a phrase they would both be written the same — by the character for **n** which would be in the position of the phrase, and so you could not tell whether the word meant was **no** or **any**. These words are distinguished by being written in different positions when standing alone. These two words cannot be phrased unless additional marks for the vowels are used to distinguish them; one word only, whichever one is decided upon, could be phrased. Take the words **this, these** and **those** in the Pitman System: these words are written by the same word-sign placed in different positions; **s** in **this** and **z** in **these** are represented in the three words by the small circle for **s** and **z**, and this small circle is written practically the same for both sounds. So these three words cannot be phrased unless marks for the vowels are written.

To show examples where words are varied in phrases: the word **not** is written ⌣. When the word **not** occurs in a phrase sometimes this sign is written and sometimes **not** is expressed by halving the preceding outline (last character) and adding the **n** hook as in the phrase **do not**, and sometimes **not** is expressed by writing the **n** hook as in the phrase **did not**. The word **have** is written by the **v** stroke in the phrase **I have**, but in the phrase **which have** the **v** hook is used to express the word **have**. The word **it** may be joined in a phrase by writing the word-sign for **it** and sometimes **it** is expressed by halving the preceding character according to the halving principle. **There** and **their** are represented by a word-sign which is written in some phrases but in other phrases **their, there** are expressed by lengthening the preceding character according to the lengthening principle. **Will** in some phrases is written by the word-sign and in other phrases the **l** hook represents **will**. **All** is expressed by the word-sign for **all** and sometimes the **l** hook is used. **Own** is expressed by the word-sign for **own** and sometimes the **n** hook is used, as in the phrase **her own**. **Us** is represented by the word-sign for **us** and also by writing the circle for **s** to represent **us**. **Were** is written in two ways

in phrases. The words **as we** are sometimes represented by a large circle, as in the phrase **as we have,** but in the phrase **as we would** the large circle for **as we** cannot be used because the word **would** is written by a small half-circle to which a large circle cannot be joined in outline. The commonest word of the language, **the,** is written in three ways.

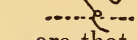
We have mentioned these instances to show that words are written in different ways in different phrases. We do not show how many times a word is phrased in one way or another. Some words may be phrased in one uniform way with perhaps one or two exceptions. But you can see what a great deal there is to learn when so many common words are varied in phrases.

We have referred to the Isaac Pitman System in the above, but phrase-words are varied as much or more in all the other Pitmanic systems. The whole subject of phrasing is in a most complicated, unscientific state in all the Pitmanic systems. They do not have any tables showing examples of how the phrases are to be written, and you literally have to learn the phrases one by one. Now if it were simply a question of joining words to form a phrase or of writing them separately the matter of learning phrasing would be easy, but a phrase-word is sometimes written in a phrase in one way and that same phrase-word is written in another phrase in a different way. This having two ways of writing these common words imposes a tax on the memory to keep the different ways of writing distinct in the mind, and it is a great obstacle to rapid, automatic writing, as you will hesitate while deciding which way of forming a phrase is to be used. A stenographer is meeting new combinations of phrase-words all the time, just as he is meeting new words.

There is lack of uniformity in writing phrases in the Pitman System. In the Bellamy System the common phrase-words are written in but one way and join in phrases in one way with very few exceptions.

You may think that this matter of varying words in phrases is only meant for an expert writer to increase speed, but such is not the case. In the very early lessons in the Pitman text-books words are varied. In an early lesson we find the phrase **I am surprised** written in a phraseogram. We do not learn whether the word **surprised** is always joined to the preceding

word, or whether the following word is joined to the phrase **I am**, or whether similar words are joined, such as the phrases **I am surpassed, I am certain,** etc. If the word **surprised** is joined, how many other words are joined? We mention the phrase **I am surprised** to show that phrases are presented in isolated instances to be learned one by one. There seems to be no end to the number of phrases in the Pitman System. Words are phrased that do not occur together frequently and that do not serve as examples for other phrases.

By varying the methods of writing phrase-words in phraseograms the phraseograms are shortened, but that does not mean, as words occur, that more phrases are quicker to write in the Pitman System than in the Bellamy System. The common phrase-words are all represented in the Bellamy System by shortest signs and are arranged so as to be joined in phrases, and phrases are quick to write. Take the phrase **I have been**: that phrase is written in the Pitman System and in the Bellamy System **I have been** is written  If the phrase **I have been** is quicker, the chances are that other phrases containing all these words or any two of them are written quicker. It is a great advantage to speed to have all common words written by shortest word-signs which can be joined in phraseograms.

We stated that we would prove that the Pitman System was harder to learn than the Bellamy System. We have presented enough evidence, we think, to prove this claim without doubt. We repeat that the reason the Pitman System is hard to learn is because the vowels are omitted and there are not adequate rules to show what the outlines without vowels mean. We stated that words could not be written faster than about fifty a minute if the vowels are written, and that in order to write faster than fifty words a minute the vowels must be omitted; and we showed that the omission of vowels is indicated by writing outlines in three positions with relation to the line and also by varying the outlines, using different characters for the different consonants to indicate omitted vowels. We showed that the rules for writing the consonants are not uniform but are subject to many exceptions, causing choice of methods of writing.

There is so much choice of ways of writing among teachers and stenographers of the Pitman System that one writer may adopt one outline and another may adopt a different outline, hence one stenographer cannot read another's notes, and in fact cannot readily read his own notes, else why is it considered such an accomplishment to be able to read one's notes when they are cold?

The Pitman System written in the Correspondence Style, in which the marks for the vowels are written and no varying of the consonants is used, is easy to learn but limited to a slow rate of speed. As soon as the Pitman writer starts to omit the vowels the difficulty of learning begins.

All shorthand writers admit that a system in which the vowels are written in the outlines is easier to learn than a system which leaves out the vowels. Vowels written in outlines leave no doubt as to the meaning of the outlines, unless the shorthand is badly written. As the vowels are written there is no varying of consonants to indicate omitted vowels (all the connecting-vowel systems have but one way of writing a consonant sound with very few exceptions), hence it is easy to learn how outlines for words are formed in the connecting-vowel systems.

Since the connecting-vowel systems are easier to learn than the Pitman System, if you studied a connecting-vowel system you could learn how to write words sooner and you could acquire as fast a rate of speed as the connecting-vowel system is capable of attaining sooner than you could acquire the same rate of speed in the Pitman System. For instance, if a connecting-vowel system is brief enough to record words at the rate of 100 a minute, you could by studying that system acquire that rate of speed sooner than you could by studying the Pitman System, and if a connecting-vowel system is brief enough to record words at a verbatim rate, you could by studying that system acquire a verbatim rate sooner than you could by studying the Pitman System, for, as we have shown, the Pitman System is harder to learn to write faster than a rate of about fifty words a minute.

After you have learned a system your speed of writing will be proportionate to the brevity of the shorthand outlines. The trouble with the connecting-vowel systems, the Pernin and the Gregg, is that they lack essentials for reducing

the shorthand and cannot be made brief enough to attain a verbatim speed. The Pernin and the Gregg are light-line systems and are written in but one position. Though they are easy to learn they are not easy to learn to write fast. No matter how much practice in writing you have and how much you abbreviate you cannot get the necessary brevity of outline to acquire a verbatim speed with either the Pernin or the Gregg System.

The authors of the connecting-vowel systems claimed that shading and position writing detract from the speed of a shorthand system and that the Pitman System is slow for those reasons; but they missed the point. The Pitman System is slow until it is learned, but in the end it is quicker than the Pernin or the Gregg because its outlines are briefer.

If a shorthand system could be constructed having the advantage of legibility afforded by connecting-vowel signs and at the same time could be made as brief in outline as the Pitman System minus the vowels is made, that system would be far better to learn. It would be as fast as the Pitman System and it would be easier to learn.

We claim that the Bellamy System can attain as high a rate of speed as the Pitman System. We have shown the principles of construction of both systems in the preceding pages. We will endeavor to show by comparing the expedients used for speed that the Bellamy System can be made as brief in outline as the Pitman System can be made.

BELLAMY	PITMAN
1. All possible geometrical signs, straight lines, circles, arcs of circles, etc., light and shaded, are used as characters to represent sounds.	1. All possible geometrical signs, straight lines, circles, arcs of circles, etc., light and shaded, are used as characters to represent sounds.
2. Vowel sounds are represented by circles, half-circles, and curved lines which join the consonants without lifting the pen.	2. Vowel sounds are represented by dots, dashes, and other marks which are written detached from the consonant characters.

3. Every character represents a different sound with two exceptions, h and y are each represented in two ways (by two characters).	3. Every character does not represent a different sound. There are four ways of writing h and four ways of writing w, three ways of writing y, three ways of writing l, and three ways of writing r, two ways of writing each of the following: s, z, f, v, n, t, d, sh and zh.
4. All the characters are used, as far as possible, to represent the sounds and combinations of sounds that occur most frequently. Good selection of sounds represented by the characters.	4. Many characters represent sounds of infrequent occurrence. There are two characters, one for each sound of th — only one is necessary; two characters are used for the sound of zh (as in vision) — none is necessary as sh and zh can be represented by one and the same character. Many double-length characters represent sounds that occur very rarely.
5. Writes in three positions. Positions above and below the line indicate the omission of a certain vowel at the beginning of a word.	5. Writes in three positions. Each position indicates the omission of any one of a certain number (five) of vowels and the omitted vowel may be anywhere in the word.
6. Uses dashes and other marks placed in special locations with relation to an outline to represent prefixes and suffixes.	6. Uses dashes and other marks placed in special locations with relation to an outline to represent prefixes and suffixes.
7. Words are abbreviated by omitting the final syllables, writing only enough shorthand to distinguish the word.	7. Words are abbreviated by omitting the vowels, by omitting final consonants and by otherwise contracting the consonant outlines.
8. The common phrase-words are all represented by the shortest, most quickly written word-signs which are all joinable in phrases, making phrases quick to write.	8. The common phrase-words are represented, as a rule, by shortest word-signs; some, however, are not represented by single marks; some phrase-words cannot be joined in phrases but must be written separately.

It is seen from this comparison that the Bellamy System uses as many expedients for speed as the Pitman System uses. We will consider which system uses the expedients to the greater extent and to the better advantage for obtaining speed.

We have shown how vowels are omitted and how their omission is indicated in the Pitman System. If a system leaves out the vowels there is less to write, and such a system would of course be faster than a system that writes the vowels, other things being equal. Vowels are omitted in the Bellamy System. The vowel **a** (short) is omitted at the beginning of a word and the vowel **o** (long and short) is also omitted. Other initial vowels may be omitted and their omission shown by writing above or below the line provided no mistaking the omitted vowel could arise, and the system would not be made as hard to learn as the Pitman. Besides initial vowels, medial and final vowels may be omitted if their presence is not required for the correct reading of the notes. We would say that outlines are shortened to a considerable extent in the Bellamy System by omitting vowels. Some words require vowels in the Pitman System to distinguish them from similar words, and the Pitman writer must write the vowels (some of them) in new and strange words. It would do little good to find what is the proportion of omitted vowels in the two systems; besides there are other ways of abbreviating besides omitting vowels.

In which system are consonants written quicker? There are practically the same number of characters in the alphabets in both systems and the characters used are the same marks. As the Bellamy System uses the characters for both consonants and vowels whereas the Pitman System uses separate marks for the vowels, there are more characters to use for consonants in the Pitman System. That does not mean, however, that more sounds are represented by the characters, for the Pitman System has two or more characters representing one sound in many instances. The Bellamy System uses every character for a different sound (with two exceptions) so that some sounds must be represented by one character in the Bellamy System which require more than one character in the Pitman System. The Pitman System may write those sounds for which it has extra characters faster than they are written in the Bellamy System,

but, on the other hand, many characters in the Pitman System represent sounds that rarely occur, and these characters may represent more frequently occurring sounds in the Bellamy System.

The Pitman System uses dots, dashes and other marks placed in special locations to represent vowels. The Pitman System uses some of these marks also to represent prefixes and suffixes. These same marks placed in special locations are used in the Bellamy System to represent prefixes and suffixes.

By abbreviating words by leaving out the vowels and by having shortest, quickest characters for consonant sounds, words are reduced to very short outlines in the Pitman System. Also the consonant outline may be abbreviated or contracted. By abbreviating words in the Bellamy System by leaving out initial vowels and by having many sounds and combinations of sounds written by single characters and by having the vowels joined quickly to the consonants, the first or first two syllables of a word, enough to identify the word, are written quickly and the rest of the word may be omitted, and words are reduced to short outlines.

The commonest words of the language, which may be called phrase-words, are represented by shortest signs in the Bellamy System, and these signs are readily joined in phrases and phrases composed of these commonest words are as quick or quicker to write in the Bellamy System.

We stated that the Bellamy System uses as many expedients as the Pitman System uses and that to determine the question of the relative speed of the two systems we would have to find which system uses the expedients to the better advantage. From a review of the comparison we have made we think it is fair to conclude that the Bellamy System uses the expedients, as a whole, to as good advantage for obtaining speed as the Pitman System does, and that the Bellamy System can be made as brief in outline as the Pitman System can be made, and that there is not much, if any, advantage in favor of either system as far as speed is concerned.

The Bellamy System can record words at a speed of 160 a minute, and as it is easier to learn than the Pitman System, that rate of speed is attained sooner; hence the Bellamy System is the better system to learn.

We claim that the Bellamy System is the easiest system

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to learn to write fast. We base our claim for this statement on the following facts: 1. Has the most complete alphabet, using all possible shorthand characters, each one to represent a different sound. Having a complete alphabet means SPEED. By using every possible character to represent a different sound, many sounds and combinations of sounds are written in one stroke of the pen which in other systems require more than one stroke of the pen. 2. Makes use of shading. Shading the characters means SPEED. By using shaded characters the number of sounds represented by the shorthand alphabet is doubled, hence many sounds and combinations of sounds are written in one shaded character which must be written in more than one light character in a system which uses only light characters. A shaded character is quicker to write than two light characters. All systems that do not use shading lack a valuable expedient for speed. 3. All the vowels are represented by short, quickly written marks which connect the consonants without taking off the pen. Writing vowels in the outlines of words means LEGIBILITY and EASE OF LEARNING. All systems that do not use connecting signs for the vowels are hard to learn to write fast because detached marks for the vowels are slow to write and must be omitted in fast writing, and when the vowels are omitted there are not adequate rules to show what the missing vowels are and where they are located. 4. Writes in three positions with relation to the line of writing. Writing in three positions means SPEED. By writing above or below the line to represent omitted sounds a gain in speed is obtained by saving the time of writing the omitted sound, and the loss in speed occasioned by shifting the hand is practically nothing. All systems that are written in only one position lack a valuable expedient for speed. 5. Has the best system of phrasing. All the commonest words of the language are represented by shortest signs which can all be joined in phrases without taking off the pen. As these common words, about one hundred in number, are written as often as all the rest of the words of the language, a great gain in speed is obtained by having them represented by short signs which can be joined in phrases.

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